

WHAT IS CLAIMED IS:

1. In an optical recording medium wherein at least a structure comprising a land and a groove, which takes part in recording/reproducing, is formed on a substrate, at least a reflective layer and a recording layer are formed on the substrate in this order, and information-recording/reproducing is carried out by a flying optical head, the optical recording medium being characterized in that when the depth from the maximum height of the land to the centerline ~~(of the land and the groove)~~ is represented by  $R_p$  and the flying height from the maximum height of the land to the optical head is represented by  $H$  in an optional length on the radius of the optical recording medium in a region for information-recording/reproducing,  $R_p$  satisfies the relation of  $H > R_p \geq 0.1H$ .

2. The optical recording medium according to Claim 1, wherein the optional length is 2 - 100 times as much as the track pitch.

3. The optical recording medium according to Claim 1, wherein a substrate obtained by irradiating light indicating the strongest relative intensity between wavelengths of 350 - 1500 nm to a front surface at a side of the recording layer of a thermoplastic plastic substrate is used.

4. The optical recording medium according to Claim 3, wherein the irradiated light is light of one or more

kinds selected from the group consisting of super-high pressure mercury lamp, high pressure mercury lamp, flash UV lamp, metal halide lamp, fluorescent lamp, arc lamp and halogen lamp.

5 5. In an optical recording medium wherein at least a reflective layer, a recording layer, a dielectric layer and a solid lubricant layer are formed on a substrate in this order and information-recording/reproducing is carried out by a flying optical head, the optical  
10 recording medium being characterized in that a centerline mean roughness  $R_a$  of a land and/or a groove formed in the recording medium is in a range of  $0.2 \text{ nm} \leq R_a \leq 2.0 \text{ nm}$ .

6. The optical recording medium according to Claim 5, wherein a liquid lubricant layer having a layer thickness  
15  $t$  is formed on the solid lubricant layer in the relation of  $t \leq 2R_a$ .

7. The optical recording medium according to Claim 6, wherein in analyzing by a distributive analysis method of a fragment ion peak of a liquid lubricant with use of  
20 TOF-SIMS, an agglomerated state of the lubricant forming the liquid lubricant layer on the outermost surface is  $10 \mu\text{m}$  or less in diameter.

8. The optical recording medium according to Claim 7, wherein an optical recording layer and the solid  
25 lubricant layer are formed on the substrate, and a layer composed of a perfluoropolyether derivative is formed as the liquid lubricant layer on the surface of the solid

lubricant layer in a layer thickness of not less than 0.3 nm but less than 2.0 nm.

9. The optical recording medium according to Claim 8, wherein in a structure comprising a land and a groove, which takes part in recording/reproducing, the depth of the groove as a guide groove is 20 nm or more but not more than 150 nm after the formation of the solid lubricant layer.

10. The optical recording medium according to Claim 9, wherein the solid lubricant layer is a diamond-like carbon layer or a SiO<sub>2</sub> layer.

11. The optical recording medium according to Claim 9, wherein the solid lubricant layer comprises a ultraviolet-ray-curable resinous composition.

12. The optical recording medium according to Claim 6, wherein at least the reflective layer, an optical recording layer, the solid lubricant layer and the liquid lubricant layer having a layer thickness t<sub>1</sub> which comprises a perfluoropolyether derivative are formed on the substrate, and  $t_2/t_1 \geq 0.6$  where t<sub>2</sub> indicates the layer thickness of the lubricant layer after having been immersed in a solvent of the perfluoropolyether derivative.

13. The optical recording medium according to Claim 12, wherein the weight average molecular weight of the perfluoropolyether derivative is 1000 - 10000.

14. The optical recording medium according to Claim 6,

wherein the contact angle of water to the front surface of the liquid lubricant layer is  $70^\circ$  or more.

15. The optical recording medium according to Claim 6, wherein the liquid lubricant layer is a layer comprising  
5 a perfluoropolyether derivative, a fluorine type polymer having at least one fluorine atom in the monomer structure, or a compatibilized product thereof.

16. In an optical recording medium wherein at least a reflective layer and a recording layer are formed in this  
10 order on a substrate in which a land and a groove for data-recording/reproducing and a header area are provided, and information-recording/reproducing is carried out by an optical head, the optical recording medium being characterized in that when the effective numerical  
15 aperture of the optical head used is represented by NA, the wavelength of laser used is represented by  $\lambda$ , the depth from the maximum height of the surface of the recording medium to the centerline of the header is represented by Rph and the depth from the maximum height  
20 of the surface of the recording medium to the centerline of the land and the groove is represented by Rpd in an optional length on the radius of the optical recording  
medium in a region for information-recording/reproducing,  
the optical recording medium has a shape in its surface  
25 satisfying the relation of  $\Delta R_p \leq \lambda / 16NA$  where  $\Delta R_p$  represents the absolute value obtained by subtracting the minimum value of Rpd from the maximum value of Rph or the

absolute value obtained by subtracting the minimum value of Rph from the maximum value of Rpd, whichever larger, the values of Rph and Rpd being obtained by measuring at plural positions.

5 17. The optical recording medium according to Claim 16, wherein a format information is recorded in the header by means of convex bumps and/or concave pits.

18. The optical recording medium according to Claim 16, wherein the convex bumps and/or concave pits are formed  
10 in the header so as to satisfy the relation of  $|Rph-Rpd| \leq \lambda / 16NA$  where each value of Rph and Rpd is obtained by measuring at plural positions.

19. The optical recording medium according to Claim 16, wherein a groove is formed in the header so as to satisfy  
15 the relation of  $|Rph-Rpd| \leq \lambda / 16NA$  where each value of Rph and Rpd is obtained by measuring at plural positions.

20. In an optical recording medium wherein at least a land portion and a groove portion, which takes part in recording/reproducing, and a header area for recording a  
20 format information are formed in a substrate; information is recorded in at least the land portion, and information-recording/reproducing is carried out, the optical recording medium being characterized in that the  
height of the header area is different from the height of  
25 the land portion.

21. The optical recording medium according to Claim 20, wherein the height of the header area is higher than the

height of the land portion.

22. The optical recording medium according to Claim 20, wherein the height of the header area is lower than the height of the land portion.

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